

Calculation Policy: EYFS

Mathematical **Manipulatives** | Key Representations
Progression in **Procedures**



Avonwood Primary School

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Part of United Learning



Key vocabulary

Place value: ones, tens, column

Addition: sum, addend, add

Subtraction: difference, subtrahend, subtract, partition

Multiplication: double,

Division: divide, share, group

Fractions: equal part, whole, half, halve

Manipulatives: place value counters, Dienes, 10 frame

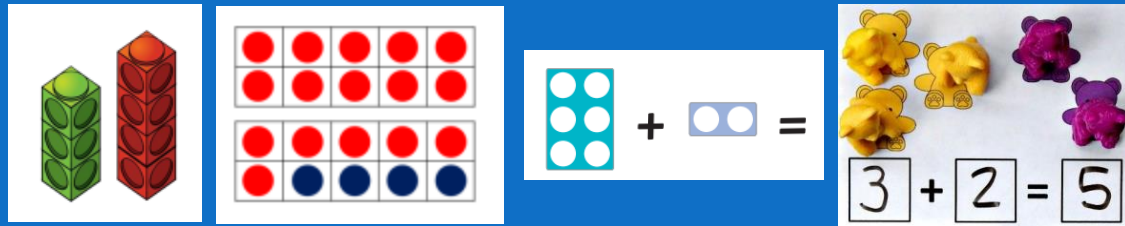
Representations: represent, representation, numberline, array, row/column, Part-Part-Whole diagram, bar model



EYFS: Addition

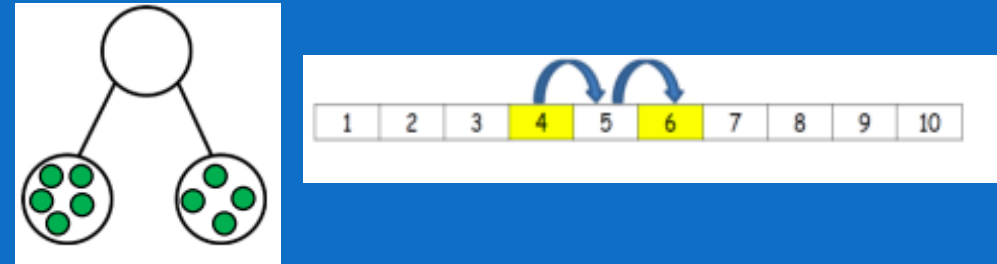
Manipulatives

The recommended manipulatives (physical resources) for adding 1- or 2-digit numbers to 20 are **Counters, cubes and 10 frames and numicon and real life objects.**



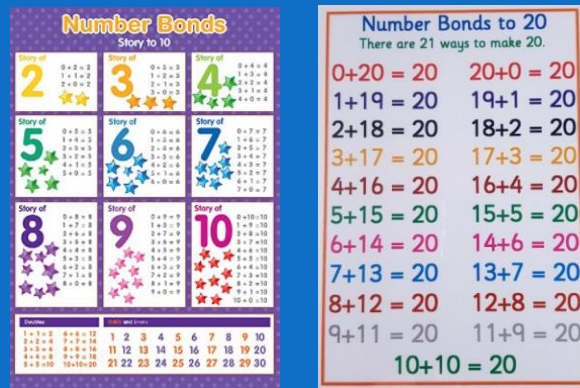
Representations

The key representations used are, number tracks, **populated number lines, blank number lines** and **part-part-whole diagrams** (which encourage children to apply their knowledge of place value).



Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 20, doubling/halving facts to 20.

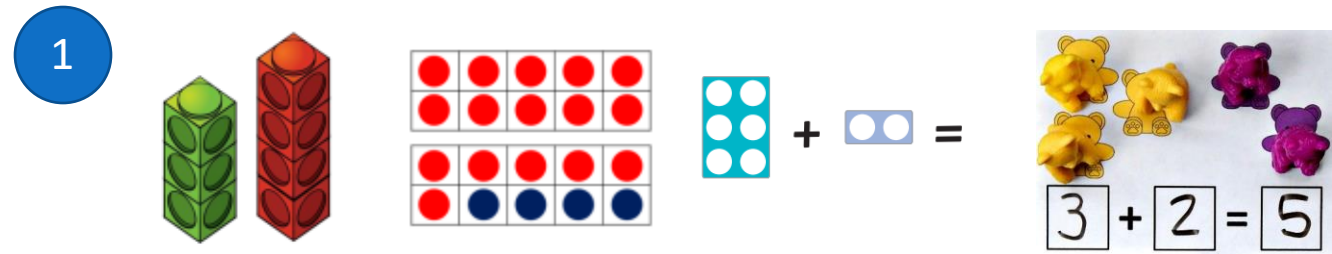


Procedural knowledge

The key method used is

Addition in EYFS

1. The recommended manipulatives (physical resources) for adding two 2- digit numbers are Counters, cubes and 10 frames and numicon.



2. The key representations used are: **number tracks**, **populated number lines**, and **part-part-whole diagrams** (which encourage children to apply their knowledge of place value).



3. The key method (procedural knowledge) is

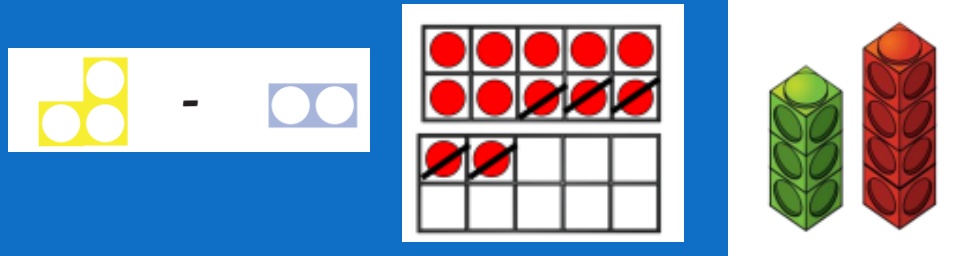




EYFS: Subtraction

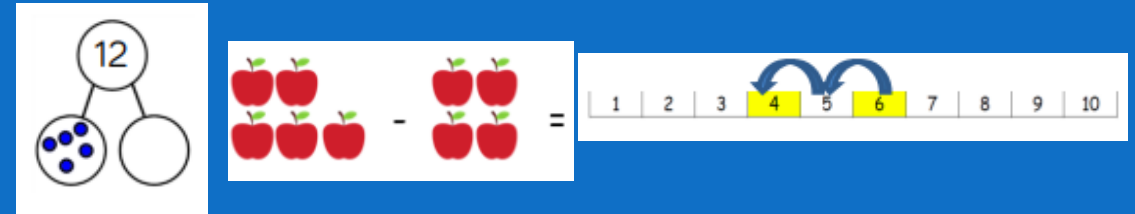
Manipulatives

The recommended manipulatives (physical resources) for subtracting 1 or 2- digit numbers to 20 are ten frames, counters, snap cubes and numicon.



Representations

The key representations used are populated **number lines**, **part-part whole models**, **real life objects** and **bar models** (which encourage children to apply their knowledge of place value).



Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 20, doubling/halving facts to 20.

+		Addition and Subtraction Facts to 20		-	
$20 + 0 = 20$				$14 + 6 = 20$	
$0 + 20 = 20$				$6 + 14 = 20$	
$20 - 0 = 20$				$20 - 14 = 6$	
$20 - 20 = 0$				$20 - 6 = 14$	
$19 + 1 = 20$				$13 + 7 = 20$	
$1 + 19 = 20$				$7 + 13 = 20$	
$20 - 19 = 1$				$20 - 13 = 7$	
$20 - 1 = 19$				$20 - 7 = 13$	
$18 + 2 = 20$				$12 + 8 = 20$	
$2 + 18 = 20$				$8 + 12 = 20$	
$20 - 18 = 2$				$20 - 12 = 8$	
$20 - 2 = 18$				$20 - 8 = 12$	
$17 + 3 = 20$				$11 + 9 = 20$	
$3 + 17 = 20$				$9 + 11 = 20$	
$20 - 17 = 3$				$20 - 11 = 9$	
$20 - 3 = 17$				$20 - 9 = 11$	
$16 + 4 = 20$				$10 + 10 = 20$	
$4 + 16 = 20$				$20 - 10 = 10$	
$20 - 16 = 4$					
$20 - 4 = 16$					
$15 + 5 = 20$					
$5 + 15 = 20$					
$20 - 15 = 5$					
$20 - 5 = 15$					

Procedural knowledge

The key methods used is a blank number line. Children are encouraged to draw their own blank number line alongside physical resources.

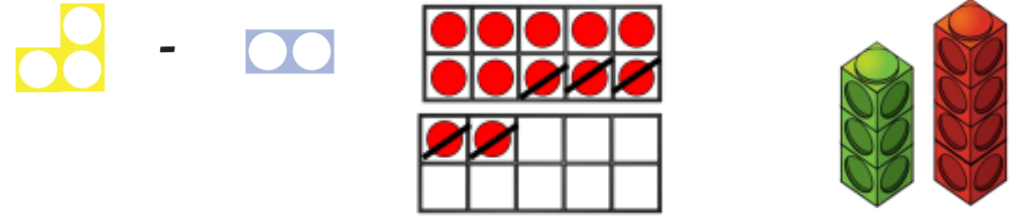
Subtraction in EFYS

1. The recommended manipulatives (physical resources) for subtracting 1 or 2-digit numbers to 20 are **ten frames, counters, snap cubes and numicon**.

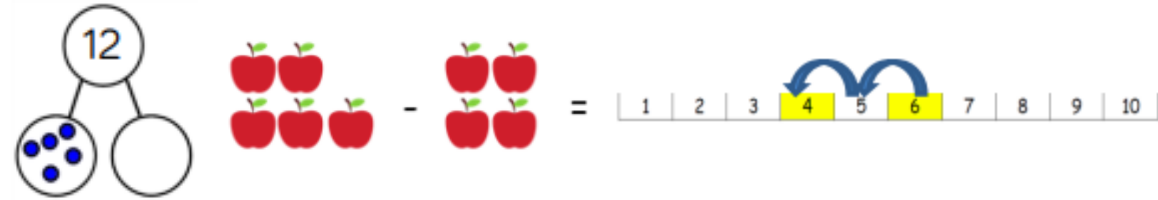
2. The key representations used are **number tracks, populated number lines, part-part whole models and real-life objects** (which encourage children to apply their knowledge of place value).

3. The key method (procedural knowledge) is

1



2

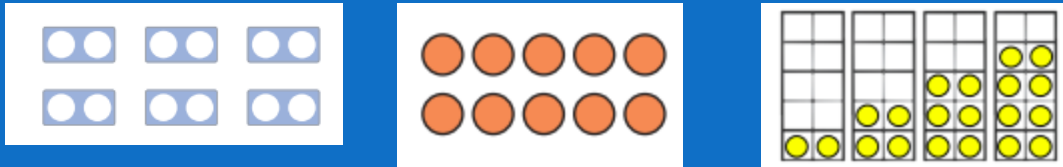




EYFS: Multiplication

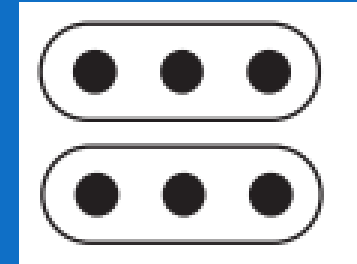
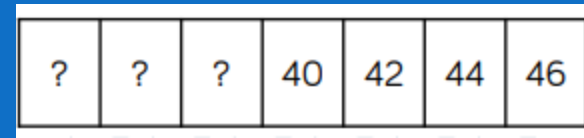
Manipulatives

The recommended manipulatives (physical resources) for doubling are **numicon**, **counters**, **cubes** and **real-life objects**.



Representations

The key representations used are **arrays**, **real-life objects** and **partially completed number tracks**.



Factual knowledge

The key factual knowledge includes

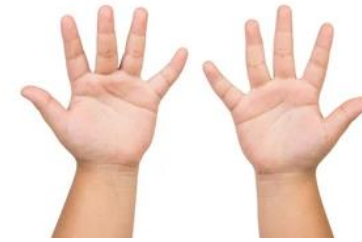
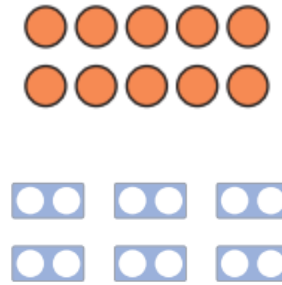
Procedural knowledge

The key methods is

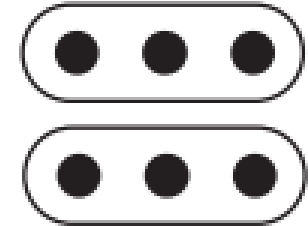
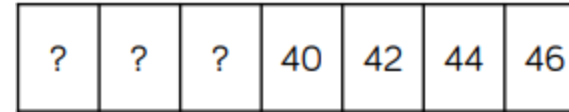
Multiplication in EYFS

1. The recommended manipulatives (physical resources) for solving 1-step problems involving multiplication are **numicon, counters, cubes and real-life objects**.
2. The key representations used are **arrays, real-life objects and partially completed number tracks**.

1



2





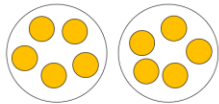
EYFS: Division

Manipulatives

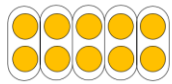
The recommended manipulatives (physical resources) for one step problems involving division are **place value counters and real life objects**.

$$10 \div 2$$

Sharing

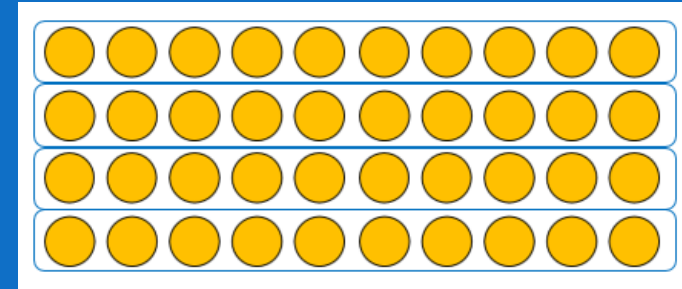


Grouping



Representations

The key representations used are **arrays**.



Factual knowledge

The key factual knowledge includes recall of 2, 5 and 10 multiplication tables.

Procedural knowledge

Division in EYFS

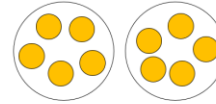
1. The recommended manipulatives (physical resources) for division are **place value counters** and **dienes**.

2. The key representations used are: **arrays**, **bar models** and **number lines**.

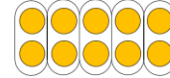
1

$$10 \div 2$$

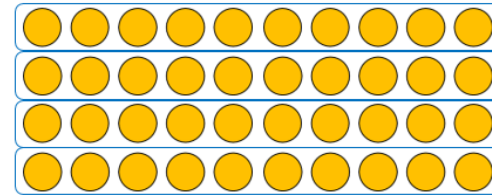
Sharing



Grouping



2

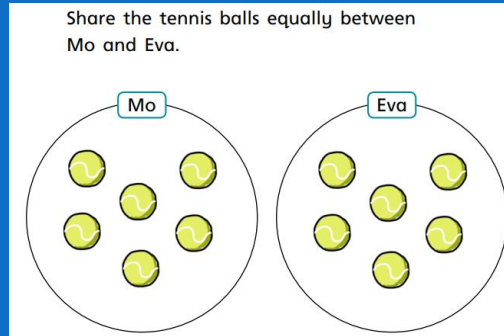




EYFS: Fractions

Manipulatives

The recommended manipulatives (physical resources) for fractions are **counters or real-life objects**.

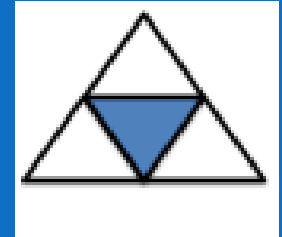
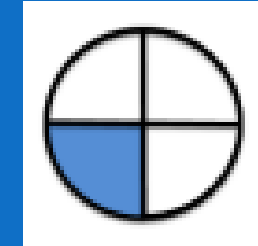
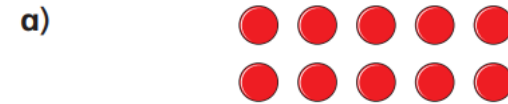


Representations

The key representations are **shapes, bar models and arrays**.



Find half of each group.



Factual knowledge

The key factual knowledge includes the recall and recognition of equivalent fractions of half and two quarters.



Procedural knowledge

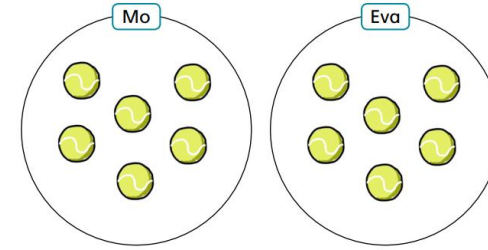
Fractions in EYFS

1. The recommended manipulatives (physical resources) for fractions are **counters or real-life objects**.

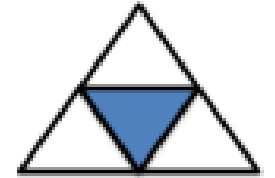
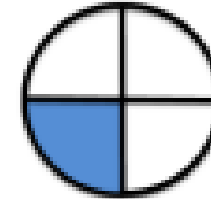
2. The key representations are **shapes, bar models and arrays**.

1

Share the tennis balls equally between Mo and Eva.



2



Find half of each group.

a)

